



CHIP-CAVATION

Digital Archaeology, Visual 6502 and the
preservation of chip technology.

Presented by Kelly Haydon on December 14th, 2012

Digital Preservation | Moving Image Archiving and Preservation | New York University

An aerial photograph of an ancient city, likely Pompeii, showing a well-preserved grid street pattern. The buildings are mostly rectangular and arranged in neat rows. The text "Digital Archaeology" is overlaid in the center of the image in a large, black, sans-serif font.

Digital Archaeology

Digital Archaeology



1. The study of past digital cultures.

Digital Archaeology



Mukurtu CMS

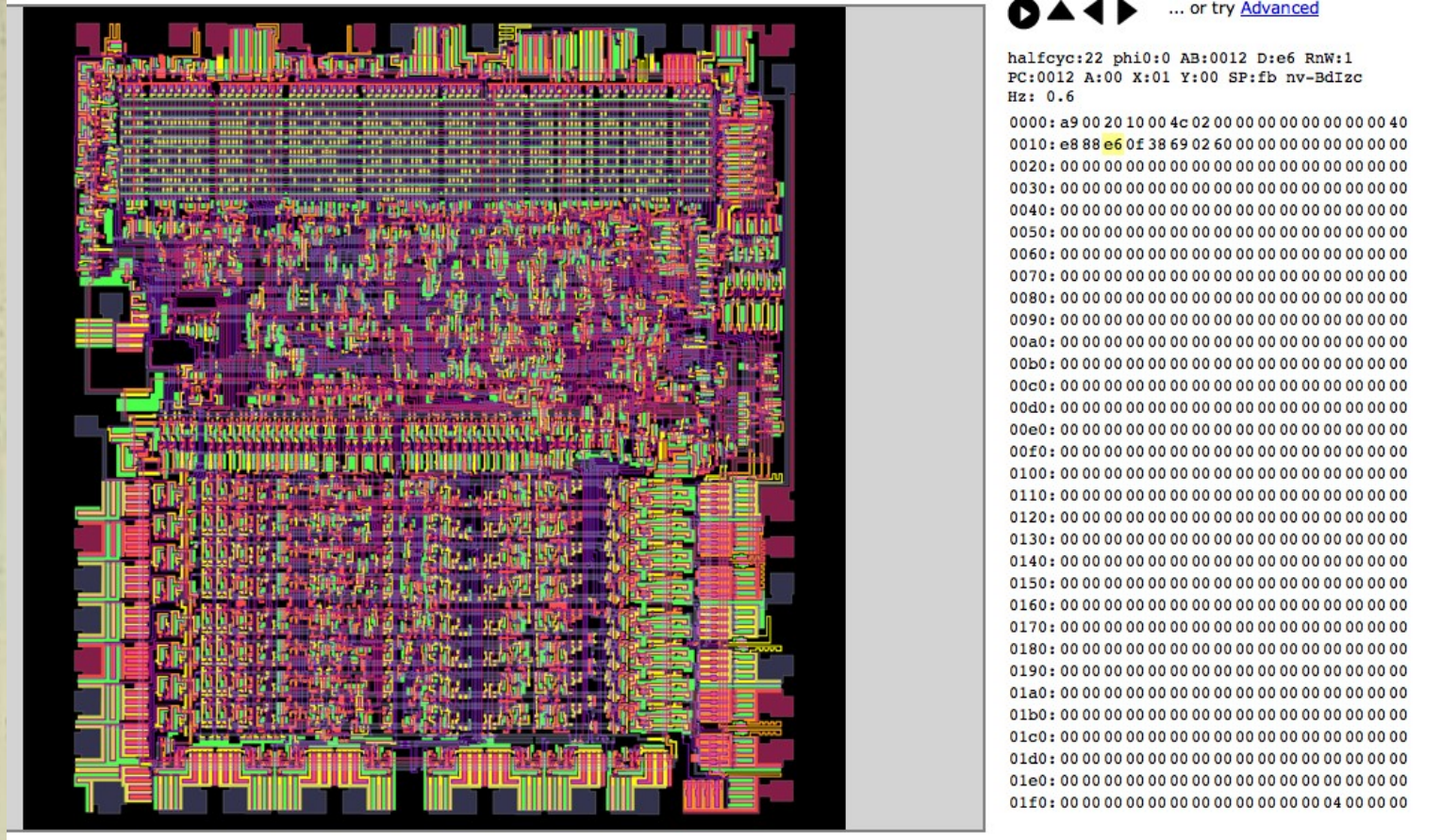
Digital heritage management
made especially for Indigenous
communities, libraries and
archives.

learn more at mukurtu.org



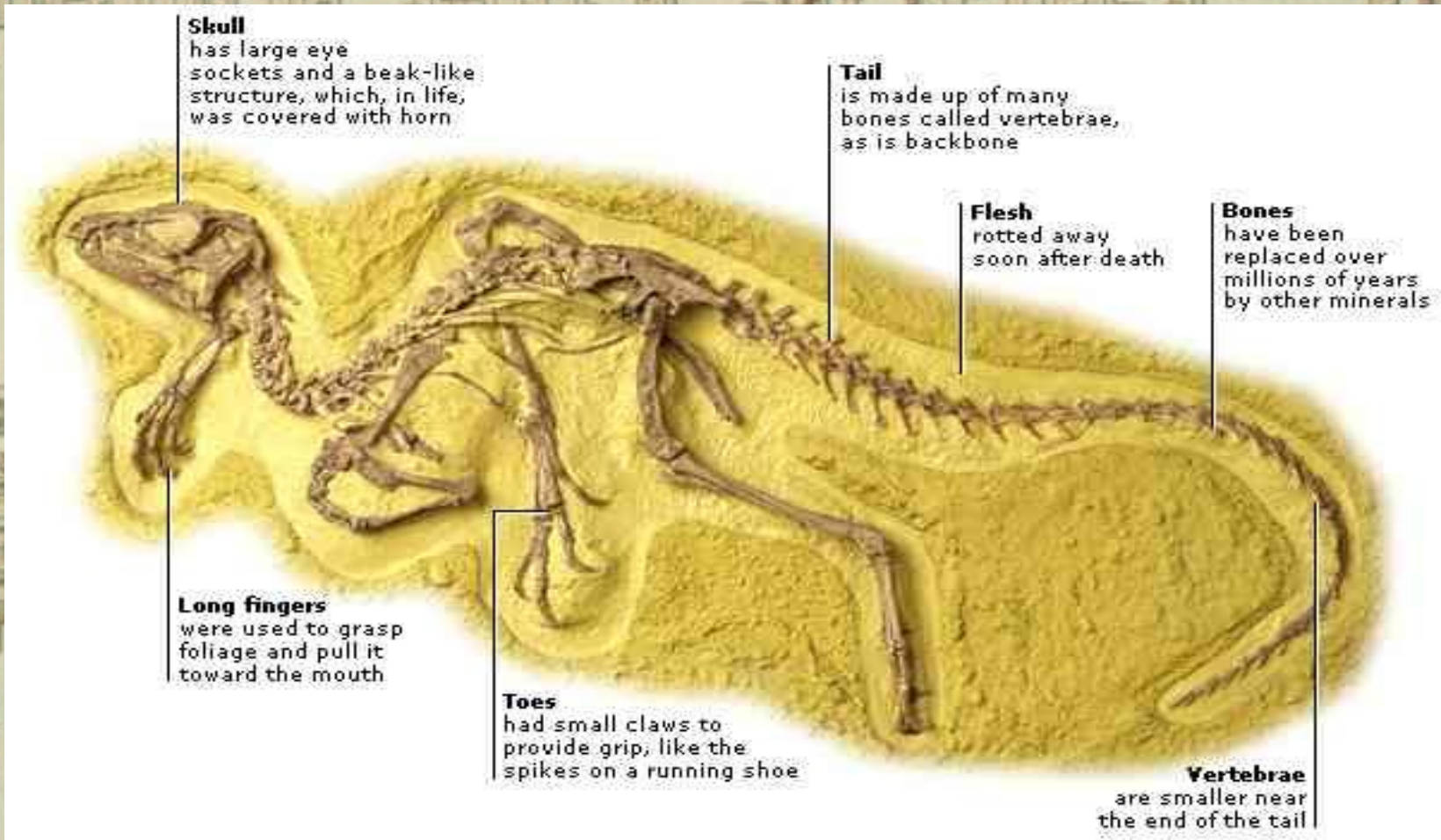
2. The development of digital tools
that serve the fields of anthropology.

Digital Archaeology



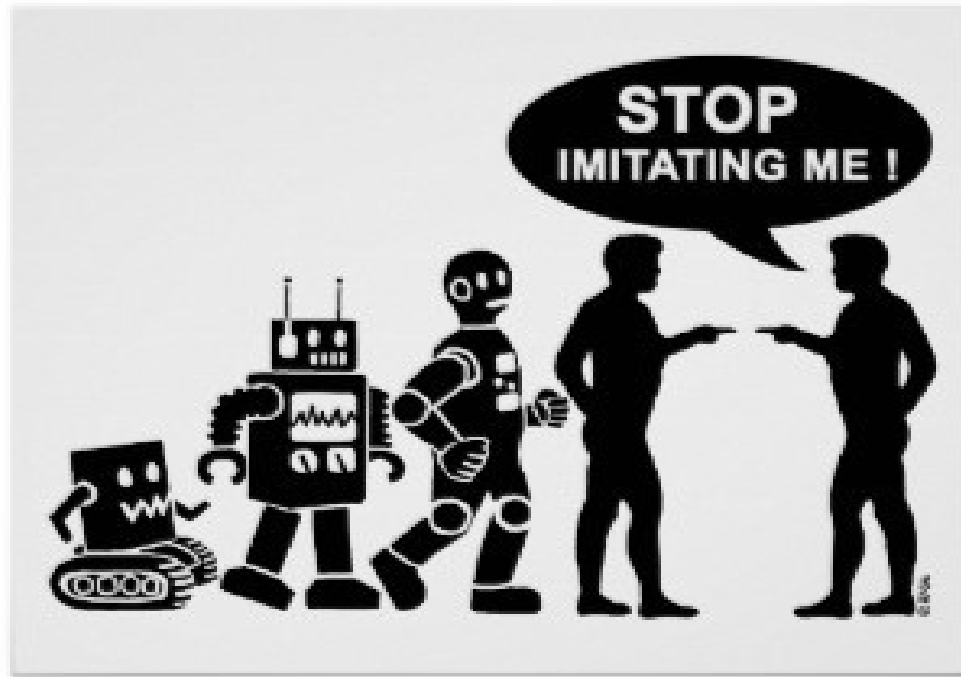
3. The reverse-engineering of obsolete digital components as a teaching tool.

Digital Archaeology



The reverse-engineering of obsolete digital components as a teaching tool.

Digital Archaeology



The reverse-engineering of obsolete digital components as a teaching tool.



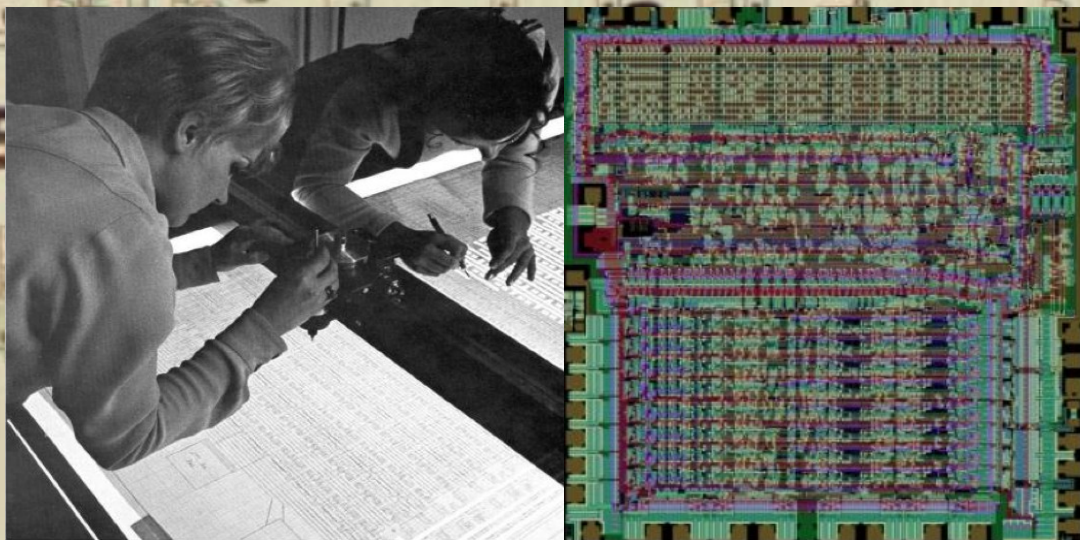
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Visual 6502

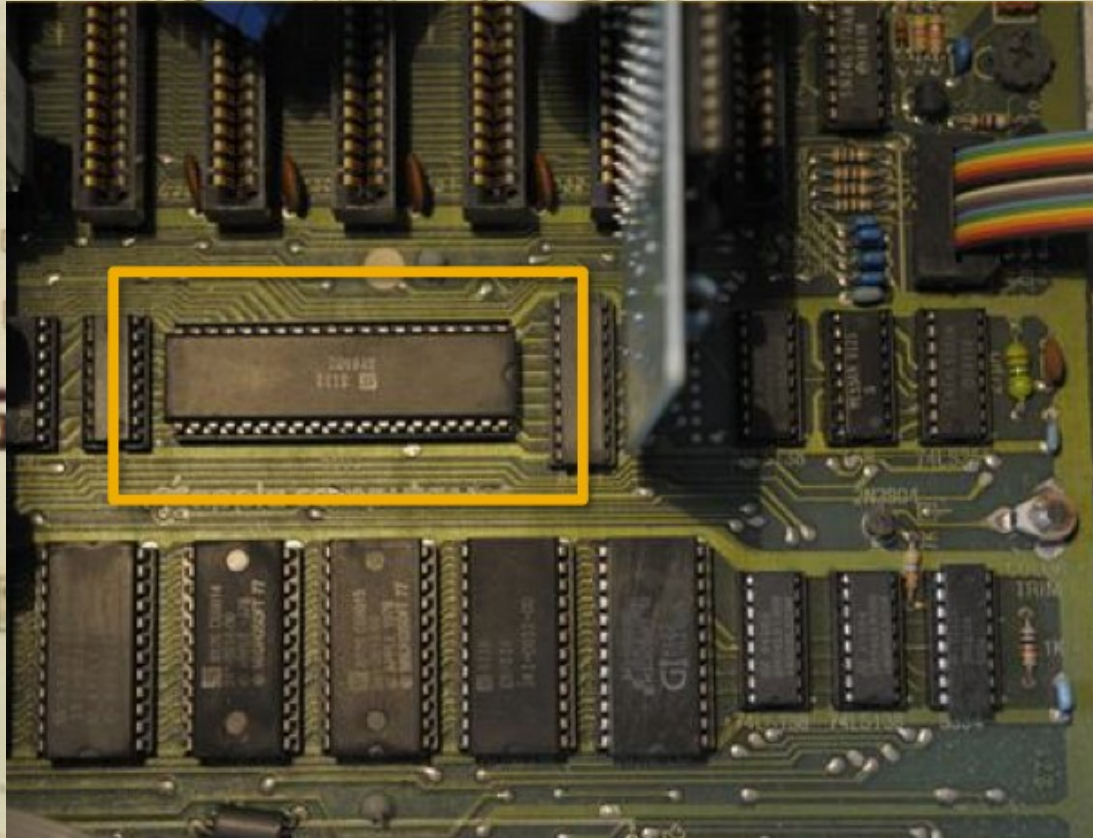
Visual 6502

- A small team of computer scientists whose mission is to “preserve, study, and document historic computers.”



- They “build a virtual chip by modeling and simulating the actual microscopic parts of a physical chip.”

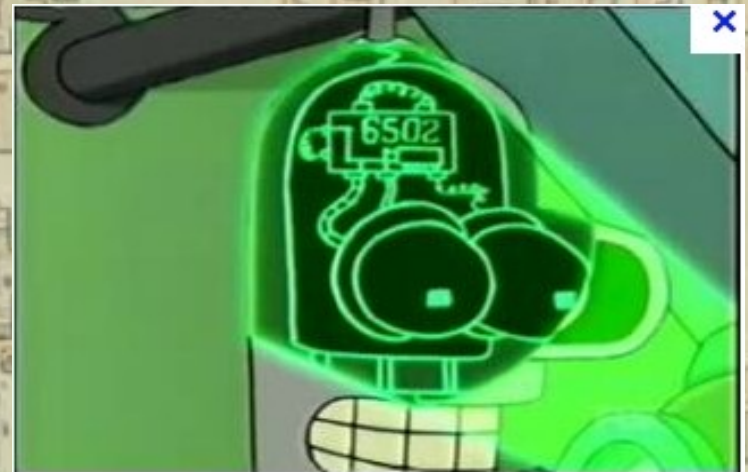
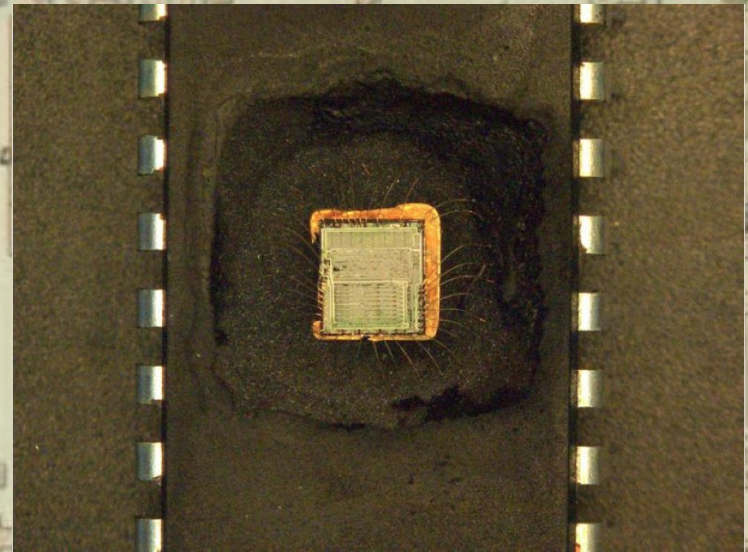
What is a Microprocessor Chip?



The brain of a computer.

What is 6502?

- Developed in 1975 by MOS Technology corp.
- Cheap, thus fueled the market for home computing systems.
- Found in Apple I, II Commodore PET, C64 Atari 2600 (6507), Atari 400, 800, Nintendo NES




What is a Simulator?

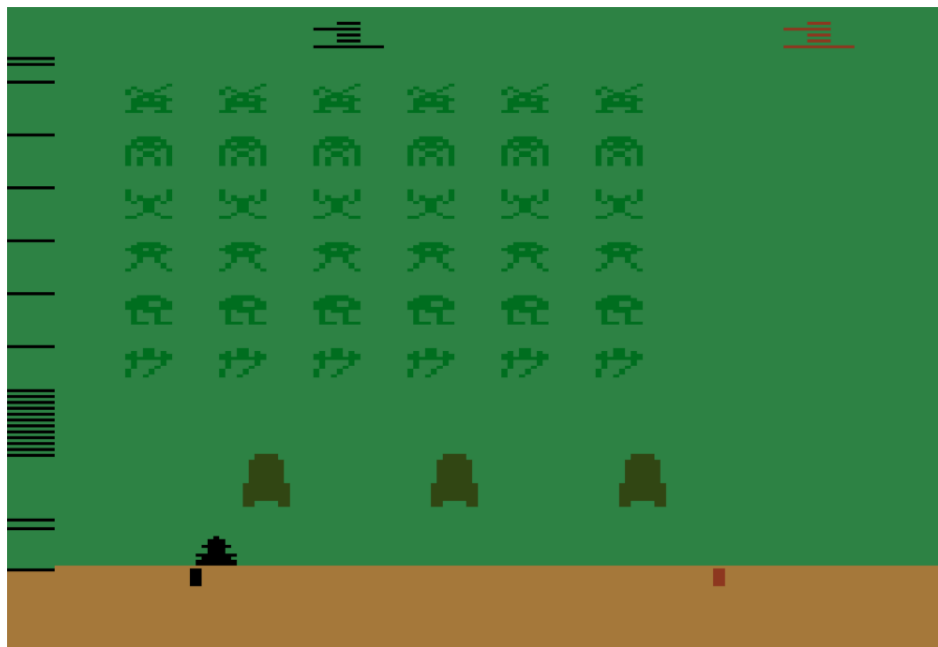
- Like an emulator, a simulator is a program that virtually recreates the behavior of a microprocessor in order to run the application.
- Unlike an emulator, a simulator does not make assumptions about how a chip will process the information.
- “Instead, we build a virtual chip by modeling and simulating the actual microscopic parts of a physical chip. We're interested in accurately preserving historic designs. It's archaeology for microchips.”

What is a Simulator?

- <http://www.visual6502.org/JSSim/expert.html>



What does this mean for
institutions collecting digital
material?



"Space Invaders" from combined 6502 and Atari TIA simulation,

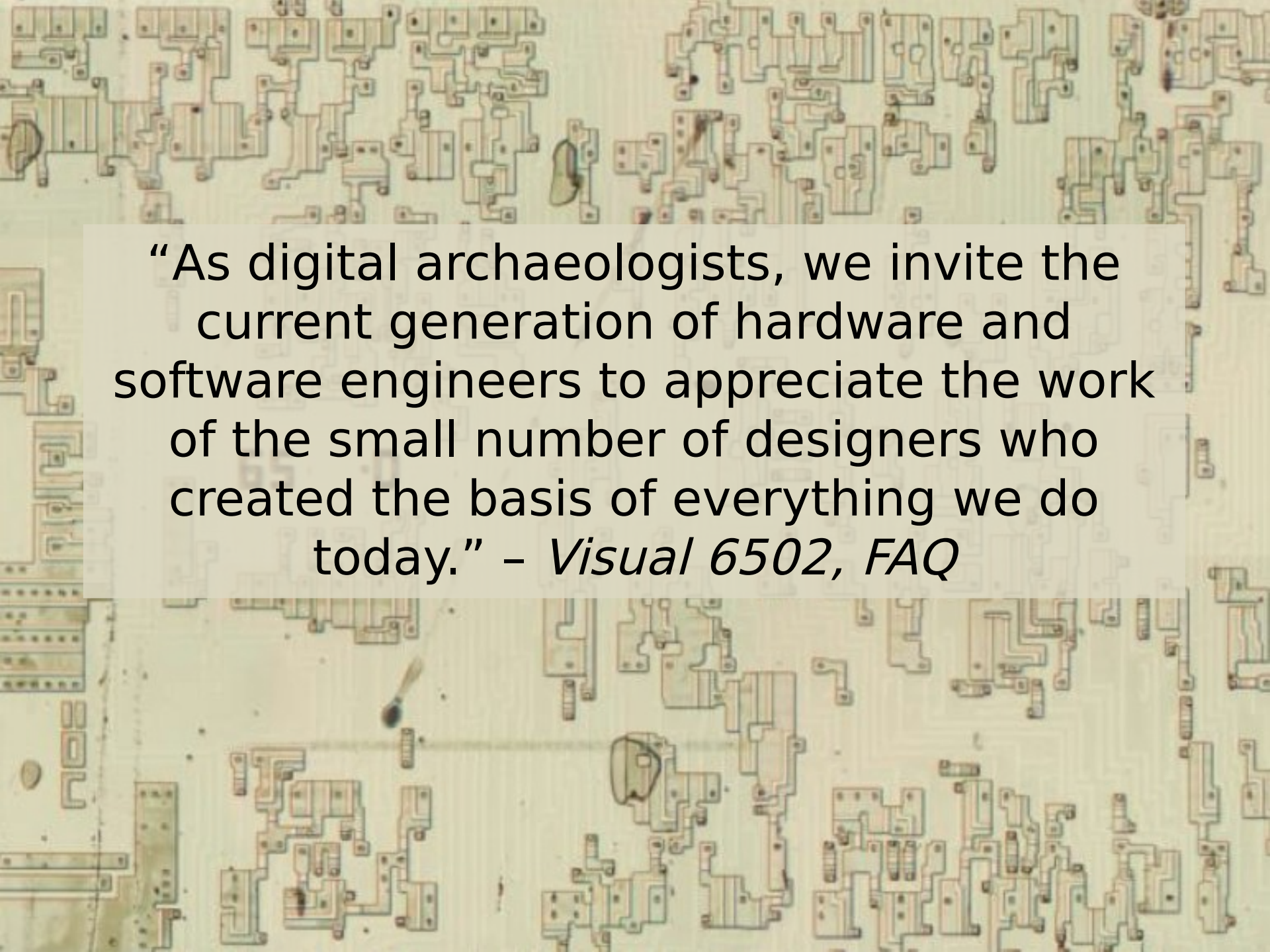
□ SIMULATOR

□ EMULATOR



And Why?

- Collecting institutions may want to recreate the gaming experience as much as possible.
- Media and computer artists may insist on simulation, not approximation to preserve the integrity of their work.
- Digital Archaeology in this context provides users of a memory institution the opportunity to study the evolution of complex technology through visual models.



“As digital archaeologists, we invite the current generation of hardware and software engineers to appreciate the work of the small number of designers who created the basis of everything we do today.” – *Visual 6502, FAQ*



The End